New Relic

New Relic: A tool that helps monitor and analyze the performance of applications and infrastructure, providing insights into how they are running and identifying issues.

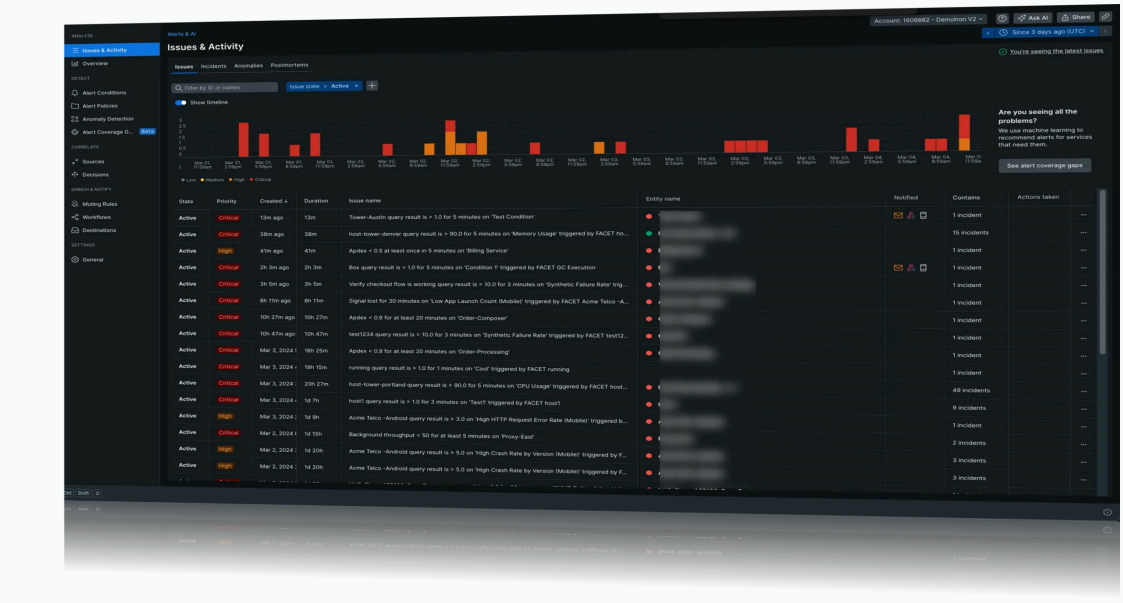
Analyze your entire cluster, correlating metrics, traces, and logs from everywhere all together

New Relic provides many ways to increase visibility. This allows you to monitor, troubleshoot, and improve digital performance.

Here's a brief overview of our most popular capabilities and features.

Alerts

Alerts help you identify issues in your applications by setting notifications for unusual events. They can be customized and integrated with tools like PagerDuty, Jira, and Slack.



Application Performance Monitoring (APM)

APM allows you to monitor your apps and microservices by collecting data through language agents. This data is stored in New Relic's database for performance analysis.

Browser
Browser monitoring tracks real user data to help you understand website performance. It identifies issues with page load times, JavaScript errors, and user interactions.

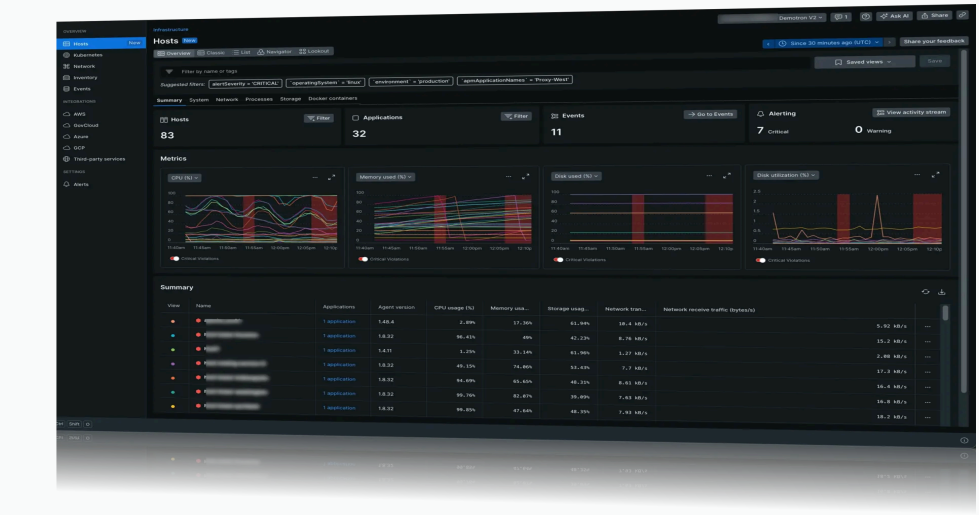
Dashboards
Dashboards allow you to arrange and visualize your data for easy monitoring. Customize charts to focus on key performance indicators and track system health.

Errors Inbox
The Errors Inbox helps you track and resolve errors across your application stack. It's embedded in the APM UI for quick error detection and resolution.

Interactive Application Security Testing (IAST)
IAST scans your code for vulnerabilities by probing your running applications. It helps prevent cyberattacks by identifying and fixing security risks.

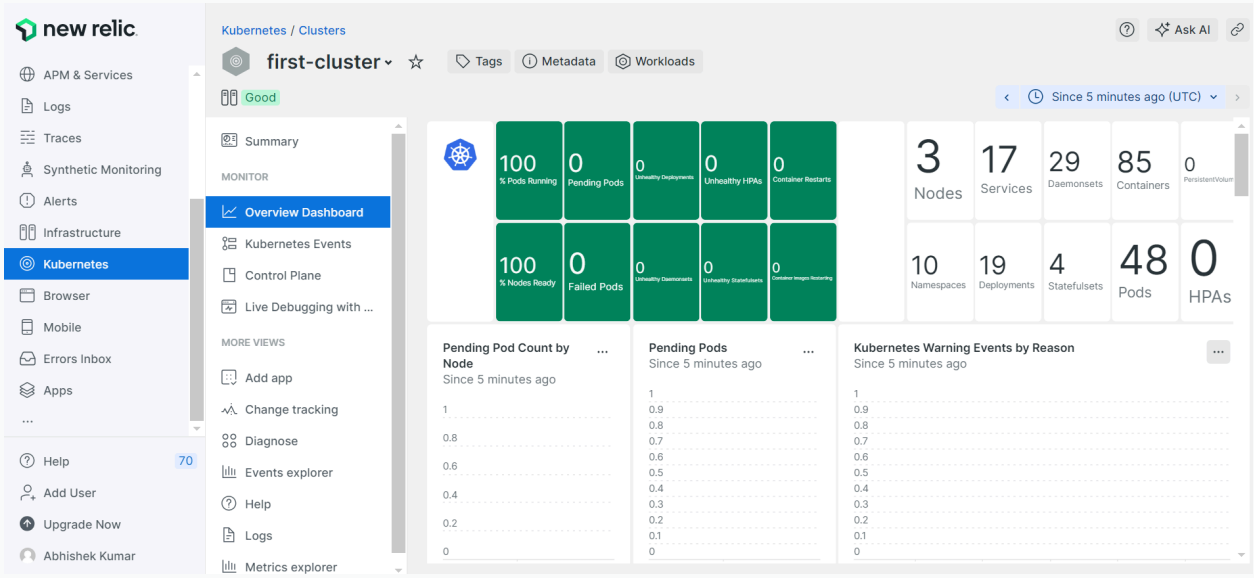
Infrastructure Monitoring

Infrastructure monitoring tracks the health and performance of your services, including cloud infrastructure. It offers over 400 integrations for monitoring third-party applications.



Kubernetes and Pixie

Kubernetes integration provides observability into your clusters' health and performance. It collects metrics, logs, and events to monitor workloads.



Live Archives

Live Archives store historical logs with telemetry data in New Relic's database. This feature offers instant access to historical data for analysis without reloading or re-indexing logs.

Logs
Log management centralizes your logs and helps analyze applications and infrastructure. It offers a unified UI for sorting through large amounts of log data.

Network Performance Monitoring
Network monitoring analyzes the performance of your networking devices like routers and switches. It builds a network map to help identify performance issues.

Mobile Monitoring
Mobile monitoring collects telemetry data from mobile apps to troubleshoot crashes and network performance issues. It supports Android, iOS, and hybrid mobile apps.

OpenTelemetry
OpenTelemetry helps collect and send data from your applications to New Relic. It simplifies monitoring and troubleshooting by providing detailed performance insights.

Query Your Data
NRQL is New Relic's SQL-like query language that allows you to access detailed data. It helps you gain insights into your applications, hosts, and business operations.

Serverless and Lambda
Lambda monitoring offers in-depth performance insights for your AWS Lambda functions. It provides detailed views of serverless application performance using CloudWatch data.

Service Levels
Service levels in New Relic allow you to set and measure SLIs and SLOs. They help evaluate the performance of your services from an end-user perspective.

Synthetic Monitoring
Synthetic monitoring simulates user interactions with your apps to detect potential issues. It can test API availability, user journeys, and certificate checks.

Vulnerability Management
Vulnerability Management provides a comprehensive view of software vulnerabilities. It helps prioritize and resolve the most critical security issues in your environment.

How it works

To monitor the performance of your services, New Relic starts by collecting performance data, known as telemetry data. This data is gathered using small pieces of code called agents, which are installed in your environment.

These agents work like a gas meter in a car, which measures how much fuel is left. Similarly, New Relic agents monitor key metrics like response times and error rates in your services. By analyzing this data, you can understand how well your services are performing and spot areas that need improvement.

There are different agents for different types of services:

- **APM Agent**: Monitors server-side applications.
- **Browser Agent**: Monitors web applications running in a browser.
- **Infrastructure Agents**: Monitor servers, containers, and other infrastructure.
- **Mobile Agent**: Monitors mobile applications.

New Relic also supports open-source tools and standards like OpenTelemetry to gather data, making it easier to monitor a wide range of technologies.

What is an Agent?

An **agent** in monitoring and observability systems like New Relic is a small piece of software or code that is installed in an environment (servers, applications, or containers) to **collect performance and telemetry data**. Agents monitor key metrics such as response times, error rates, memory usage, CPU utilization, and more. They act as a bridge between your infrastructure and the monitoring tool, sending data to a central system for analysis.

Why Use Agents?

- **Real-Time Monitoring**: Agents continuously monitor and send data in real-time, allowing for the detection of performance issues or failures as they happen.
- **Metrics Collection**: They collect a wide range of performance metrics, which helps track the health and performance of various system components.
- **Alerting**: Based on the data collected, thresholds can be set to trigger alerts when certain conditions are met (e.g., high CPU usage, low disk space, application errors).
- **Troubleshooting**: By analyzing the data collected by agents, you can identify root causes of issues, bottlenecks, and areas for improvement.
- **Integration with Tools**: Many agents support integration with other tools or monitoring standards like OpenTelemetry, making them versatile for different environments.

Types of Agents in New Relic

1. **APM Agent (Application Performance Monitoring)**: Monitors server-side applications like Java, Node.js, .NET, etc. It tracks application performance, error rates, transaction times, etc.
2. **Browser Agent**: Collects performance data from web applications running in browsers, helping to track user experience and website performance metrics like page load time.
3. **Infrastructure Agent**: Monitors physical and virtual infrastructure like servers, containers, and cloud instances. It captures system metrics such as CPU, memory, and network utilization.
4. **Mobile Agent**: Monitors mobile applications to track performance metrics related to app responsiveness, crashes, and errors on Android or iOS.
5. **OpenTelemetry and Open Source Support**: New Relic supports integration with open-source monitoring tools like Prometheus and OpenTelemetry to collect metrics from a broader range of environments.

Agents in Kubernetes

In **Kubernetes**, **infrastructure agents** and **open-source integrations** like Prometheus are commonly used to monitor clusters, nodes, and pods. Here's how it works:

1. **New Relic Kubernetes Integration**: New Relic offers a dedicated **Kubernetes integration** that gathers detailed telemetry data from Kubernetes clusters. It deploys an **Infrastructure Agent** in the cluster, usually as a **DaemonSet**, meaning one agent runs on each node of the cluster. This agent collects data like node health, pod status, memory usage, CPU consumption, etc.
2. **Prometheus Integration**: You can also use Prometheus, which is a popular open-source monitoring system in the Kubernetes ecosystem. New Relic can integrate with Prometheus by scraping its metrics or using **New Relic Prometheus Agent** to ingest the data into the New Relic platform for a more detailed analysis.
3. **Kubernetes Metrics**: Agents in Kubernetes can monitor:
    - **Node Metrics**: CPU, memory, disk usage, and other node health indicators.
    - **Pod Metrics**: Uptime, resource consumption, replica count, etc.
    - **Cluster Health**: Overall health of the Kubernetes control plane and components like API server, scheduler, etc.
4. **NRQL Queries for Kubernetes**: Once the agent is running, you can query the data using New Relic's **NRQL** (New Relic Query Language) to create custom dashboards, set up alerts, and track performance over time.

In summary, agents are essential for capturing real-time data from various system components. In Kubernetes, **infrastructure agents** or open-source integrations (like Prometheus) are typically used to monitor the health and performance of the cluster and its workloads.

Get started

1. Sign Up for New Relic

If you haven't already, sign up for a New Relic account. It's free and takes just a few minutes. Once signed up, you can start monitoring your applications right away.

2. Add Your Data

Begin by adding your data to New Relic. The guided installation process will automatically detect your environment, making it easy to choose which systems you want to monitor. You can also manually install or add more data sources as needed.

3. Explore Your Data

Once your data is in New Relic, you can start analyzing it. This helps you identify issues and view performance metrics, giving you instant visibility into your application's performance.

4. Query Your Data

Use New Relic Query Language (NRQL) to write queries and gain insights from your data. This helps you understand how your applications are performing and how they relate to business metrics.

5. Set Up a Dashboard

Create and customize dashboards to visualize the data you need. While New Relic provides pre-built dashboards, you can tailor your own to track real-time system performance and share them with your team.

6. Configure Alerts

Set up alerts to monitor your system's performance and get notifications when something changes. You can customize these alerts to help you stay ahead of potential issues, ensuring smooth operation and minimizing impact on users.

Install the Kubernetes integration

Prerequisites

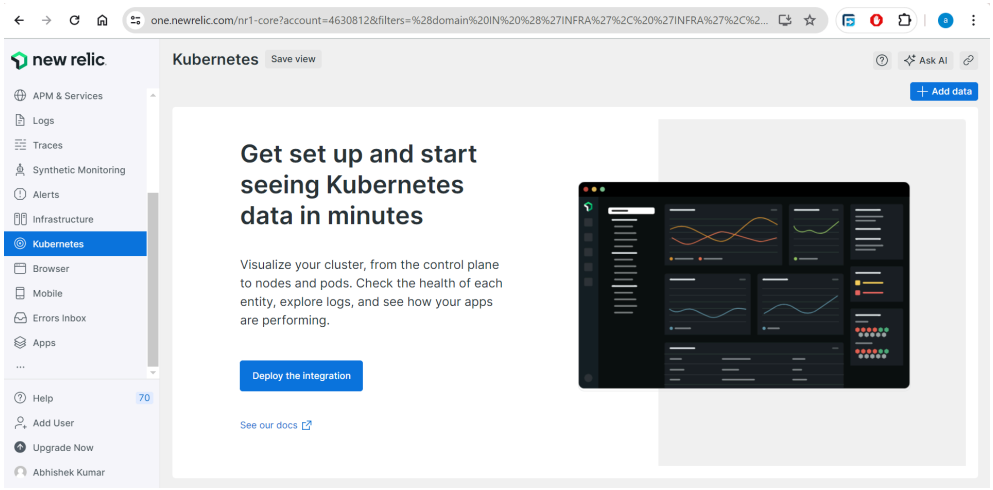
- Kubernetes Cluster: You need a running Kubernetes cluster (either local like Minikube, Kind, or a cloud-managed service like GKE, EKS, or AKS).
- kubectl: Ensure `kubectl` is installed and configured to access your Kubernetes cluster.

New Relic Infrastructure agent collects data about your Kubernetes environment. To install it, you'll use Helm, a package manager for Kubernetes.

Create a New Relic Account

- If you don't have a New Relic account, sign up at New Relic.
- Once signed in, you'll need your New Relic license key, which can be found in your account settings.
- `[YOUR_NAMESPACE]` with your desired namespace
- `[YOUR_INGEST_LICENSE_KEY]` with your account's ingest license key
- `[YOUR_CLUSTER_NAME]` with your desired cluster name
- Using Kubernetes integration using Helm chart.

Steps are mention in below images -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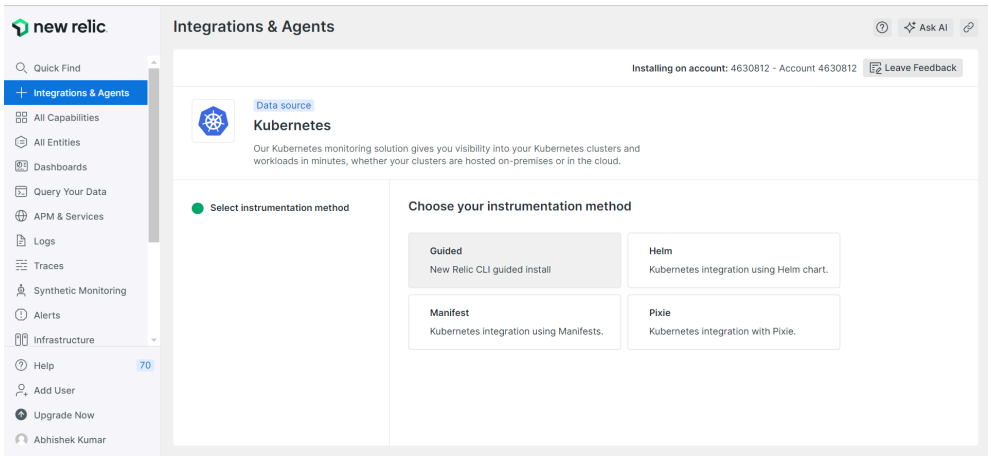
Abhishek Kumar
Get set up and start seeing Kubernetes data in minutes
Visualize your cluster, from the control plane to nodes and pods. Check the health of each entity, explore logs, and see how your apps are performing.
Deploy the integration
See our docs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Integrations & Agents
Ask AI
Quick Find
Integrations & Agents
All Capabilities
All Entities
Dashboards
Query Your Data
APM & Services
Logs
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Synthetic Monitoring
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Infrastructure
Help
70
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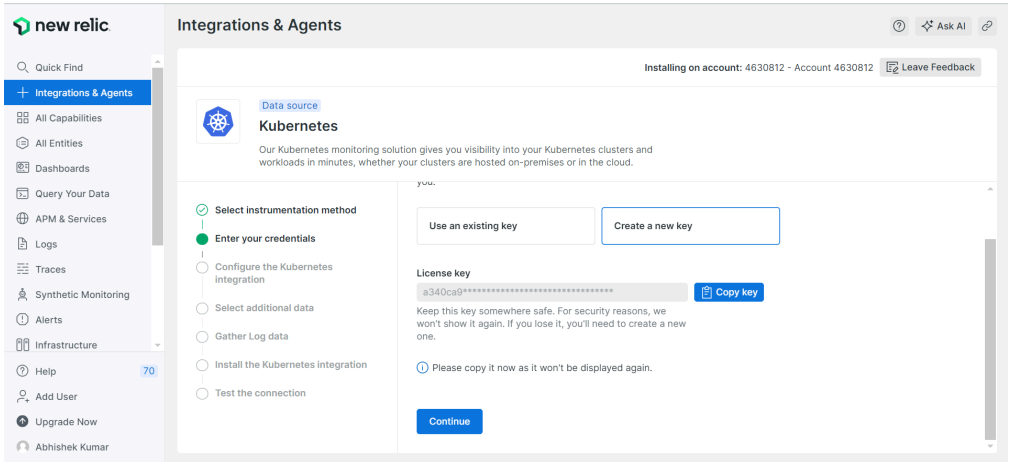
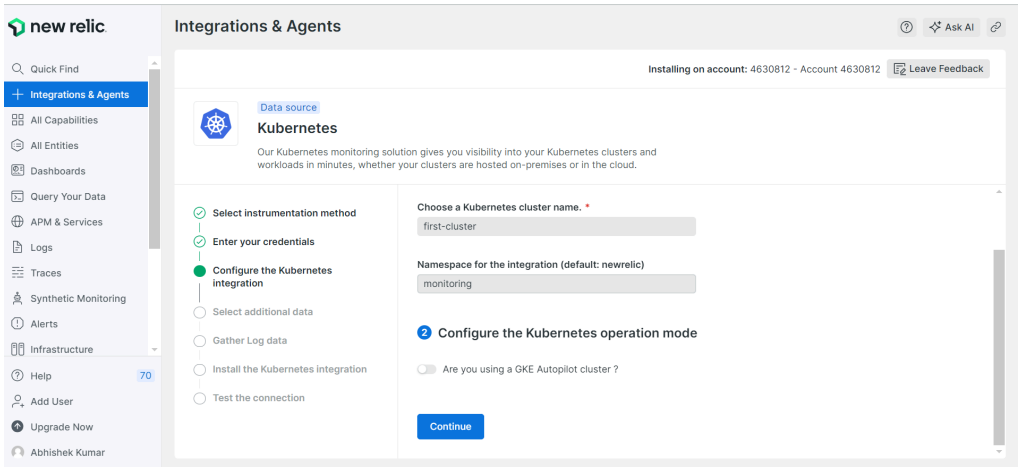
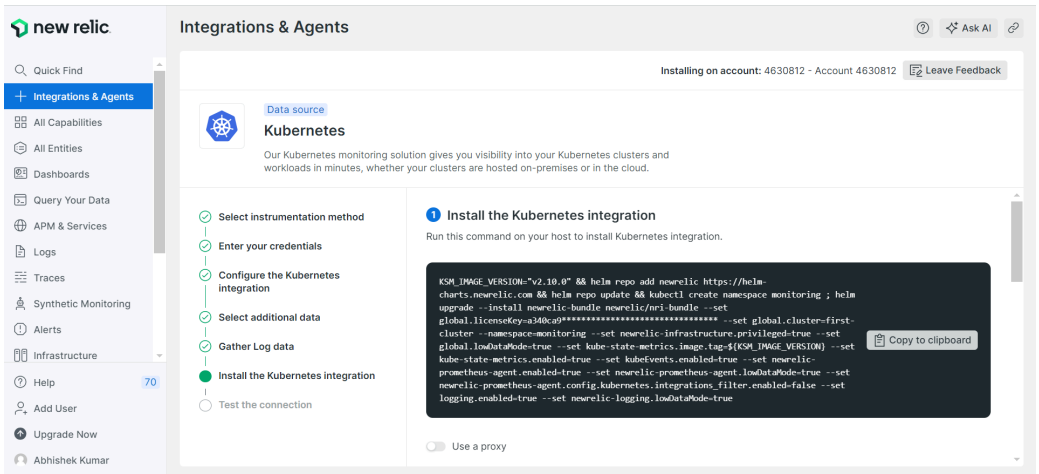
Abhishek Kumar
Installing on account: 4630812 - Account 4630812
Leave Feedback
Data source
Kubernetes
Our Kubernetes monitoring solution gives you visibility into your Kubernetes clusters and workloads in minutes, whether your clusters are hosted on-premises or in the cloud.
Select instrumentation method
Choose your instrumentation method
Guided
New Relic CLI guided install
Helm
Kubernetes integration using Helm chart.
Manifest
Kubernetes integration using Manifests.
Pixie
Kubernetes integration with Pixie.

Sets your New Relic license key.







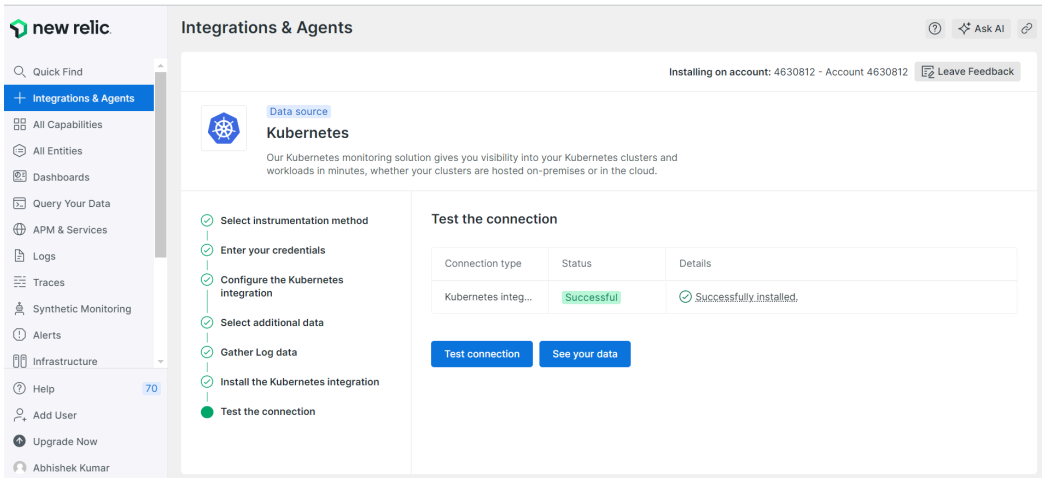
Install the New Relic Infrastructure Agent

Install the New Relic Kubernetes Integration

To connect New Relic to your Kubernetes cluster, run all the commands provided in the script on your cluster. These commands will install and configure New Relic with the necessary settings to monitor your cluster effectively.

```
# Set the Kube-State-Metrics (KSM) image version
KSM_IMAGE_VERSION="v2.10.0"

# Add the New Relic Helm repository
helm repo add newrelic https://helm-charts.newrelic.com

# Update Helm repositories to get the latest charts
helm repo update

# Create a namespace for New Relic components
kubectl create namespace newrelic

# Install or upgrade the New Relic bundle using Helm with specified configurations
helm upgrade --install newrelic-bundle newrelic/nri-bundle \
  --set global.licenseKey=2195d7ae4709e10b5807d0cf4e3b7d5aFFFFNRAL \  # Your New Relic license key
  --set global.cluster=first-cluster \  # Name your Kubernetes cluster
  --namespace=newrelic \  # Target the 'newrelic' namespace
  --set newrelic-infrastructure.privileged=true \  # Grant privileged access for the Infrastructure agent
  --set global.lowDataMode=true \  # Enable low data mode to reduce data usage
  --set kube-state-metrics.image.tag=${KSM_IMAGE_VERSION} \  # Use specified KSM image version
  --set kube-state-metrics.enabled=true \  # Enable Kube-State-Metrics
  --set kubeEvents.enabled=true \  # Enable Kubernetes events monitoring
  --set newrelic-prometheus-agent.enabled=true \  # Enable Prometheus agent for metrics
  --set newrelic-prometheus-agent.lowDataMode=true \  # Enable low data mode for Prometheus agent
  --set newrelic-prometheus-agent.config.kubernetes.integrations_filter.enabled=false \  # Disable integrations filter
  --set logging.enabled=true \  # Enable logging
  --set newrelic-logging.lowDataMode=true  # Enable low data mode for logging
```

After running all the commands successfully, you'll be able to view your Kubernetes data in New Relic.



Exploring Your Kubernetes Cluster with New Relic

1. View Cluster Status After setting up New Relic's Kubernetes integration, you can see your cluster's status, including nodes and pods, in one place.

2. Monitor Services Start monitoring services running in your cluster. Check out the "Monitor services running on Kubernetes" page for details on how to do this.

3. Check Health and Logs You can check the health of each component, explore logs, and monitor application performance. The Events integration will show everything happening in your cluster.

4. Use the Kubernetes Navigator The Kubernetes Navigator lets you group and analyze Pods, Deployments, DaemonSets, Jobs, CronJobs, StatefulSets, Nodes, and Containers. It shows metrics like CPU usage, memory, and network activity, and highlights alert statuses.

5. Metrics and Alerts Visualize metrics with color gradients: dark blue means high usage, light blue means low usage. Alerts are color-coded: red for critical, yellow for warnings, and green for normal status.

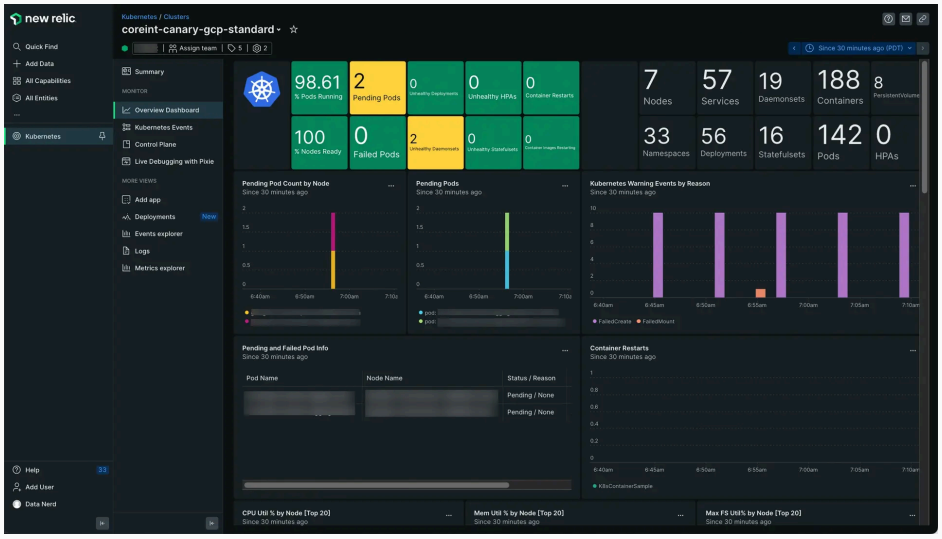
6. Filter and Explore Use dropdown filters to view different metrics and groupings. Hover over entities to see details like alert status and metric values.

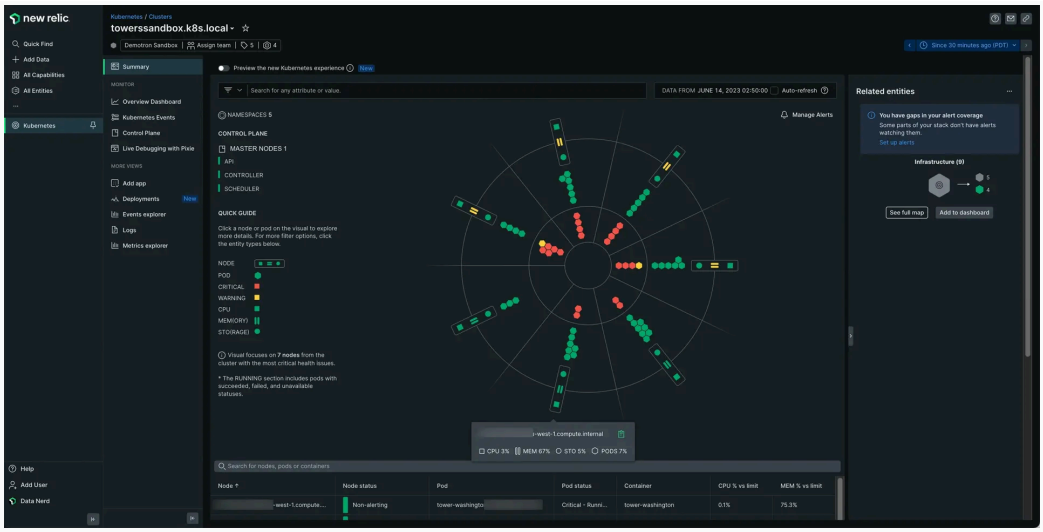
7. Feedback Share your thoughts on the Kubernetes Navigator UI by selecting "Help > Give Us Feedback" in New Relic and start your feedback with "Kubernetes Navigator."

8. Access Additional Resources Learn more about Kubernetes entities and explore the Cluster Overview dashboard for real-time health and performance data. The dashboard helps answer questions about pods, nodes, and overall cluster status.

9. Browse Kubernetes Events If you've enabled the Kubernetes events integration, you can browse and filter events from your cluster in New Relic.

10. Use the Cluster Explorer (Deprecated) The Cluster Explorer is being replaced by the Kubernetes Navigator. You can switch back to the Cluster Explorer if needed, which provides a visual overview of nodes and pods, with alerts and usage data.





simple comparison between **New Relic** and **Prometheus + Grafana**:

1. Setup and Maintenance

- **New Relic**: It's a fully hosted, cloud-based platform. You don't need to manage servers or infrastructure yourself.
- **Prometheus + Grafana**: You need to install and manage both tools yourself, which includes scaling, storage, and updating.

2. Data Collection

- **New Relic**: Uses agents to collect data from applications, infrastructure, and logs. It also supports third-party integrations like AWS, GCP, and OpenTelemetry.
- **Prometheus**: Focuses on metrics. It pulls data from your applications and infrastructure using exporters.

3. Visualization

- **New Relic**: Has built-in dashboards and visualizations for all your data (metrics, logs, traces) without much setup.
- **Grafana** (used with Prometheus): Offers customizable, powerful dashboards, but you have to configure them yourself.

4. Features

- **New Relic**: Provides an all-in-one solution with APM (Application Performance Monitoring), logs, error tracking, and infrastructure monitoring.
- **Prometheus + Grafana**: Primarily focused on metrics, and you'll need additional tools for logging and tracing (e.g., Loki for logs).

5. Alerts

- **New Relic**: Has easy-to-set-up alerting with built-in rules and thresholds.
- **Prometheus**: Offers alerting via Alertmanager, but it requires more manual setup.

6. Cost

- **New Relic**: Paid platform with some free-tier options, but charges are based on usage.
- **Prometheus + Grafana**: Both are open-source and free to use, but you pay for the infrastructure (servers, storage) to run them.

In summary:

- Use **New Relic** for an easy, all-in-one solution that doesn't require much setup or maintenance.
- Use **Prometheus + Grafana** if you want more control and customization with an open-source solution, but you'll need to manage everything yourself.

Conclusion:

New Relic is a monitoring and observability platform that helps you track the performance and health of your applications, infrastructure, and services in real-time. It collects data from various sources, like servers, containers, and cloud environments, and provides insights through dashboards, alerts, and logs.

In simple terms, New Relic helps you:

1. Monitor applications for performance issues.
2. Track infrastructure health (CPU, memory, network usage, etc.).
3. Detect and fix problems faster using detailed analytics.
4. Set up alerts to notify you when something goes wrong.

More explanation visit link
https://newrelic.com/blog/how-to-relic/simplify-your-kubernetes-monitoring-with-the-new-relic-operator#toc-why-you-should-use-the-new-relic-kubernetes-operator